



Integrated Public Alert and Warning System

Get Alerts, Stay Alive

15 December 2010



FEMA

The Evolution of Emergency Broadcasting



1951 - 1963
CONELRAD

Originally called the “Key Station System,” the **CONTROL** of **ELECTROMAGNETIC RADIATION** (CONELRAD) was established in August 1951.

Participating stations tuned to 640 & 1240 kHz AM and initiated a special sequence and procedure designed to warn citizens.

1963 - 1997
EBS

EBS was initiated to address the nation through audible alerts. It did not allow for targeted messaging.

System upgraded in 1976 to provide for better and more accurate handling of alert receptions.

Originally designed to provide the President with an expeditious method of communicating with the American Public, it was expanded for use during peacetime at state and local levels.

1997 - 2006
EAS

EAS jointly coordinated by the FCC, FEMA and NWS.

Designed for President to speak to American people within 10 minutes.

EAS messages composed of 4 parts:

- Digitally encoded header
- Attention Signal
- Audio Announcement
- Digitally encoded end-of-message marker

2006
IPAWS

IPAWS modernizes and integrates the nation’s alert and warning infrastructure.

Integrates new and existing public alert and warning systems and technologies

Provides authorities a broader range of message options and multiple communications pathways

Increases capability to alert and warn communities of all hazards impacting public safety.



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IPAWS Federal Guidance -

Executive Order 13407 states:

“It is the policy of the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people...”

“establish or adopt, as appropriate, common alerting and warning protocols, standards, terminology, and operating procedures for the public alert and warning system to enable interoperability and the secure delivery of coordinated messages to the American people through as many communication pathways as practicable...”

“administer the Emergency Alert System (EAS) as a critical component...”

“ensure that under all conditions the President of the United States can alert and warn the American people.”

1995 Presidential EAS Statement of Requirements states:

“The national level EAS must be: Fully integrated from the national to local level, yet capable of independent local (Priority Two) and state (Priority Three) operations”

**The IPAWS Program Management Office was formed to implement
Executive Order 13407**



The IPAWS Program Vision, Mission, and Goals

Vision

Timely alert and warning to American citizens in the preservation of life and property.

Mission

Provide integrated services and capabilities to Federal, State, territorial, tribal, and local authorities that enable them to alert and warn their respective communities via multiple communications methods.

Goals

To attain the Vision and accomplish the Mission, FEMA has established three overarching strategic goals:

Goal 1 – Create and maintain an integrated interoperable environment for alert and warning

Goal 2 – Make Alert and Warning More Effective

Goal 3 – Strengthen the Resilience of IPAWS Infrastructure



IPAWS Stakeholders



- Successful private-public relationships are critical to IPAWS.
- IPAWS is fulfilling the requirements in EO 13407 by reaching out to all stakeholders.

IPAWS Vision

*Timely Alert And Warning To American Citizens In
The Preservation of Life And Property*



**Alerting Authorities;
Federal, State,
territorial, tribal,
and local**



IPAWS Alert Aggregators



Television



Radio



Cell Phone



Computer



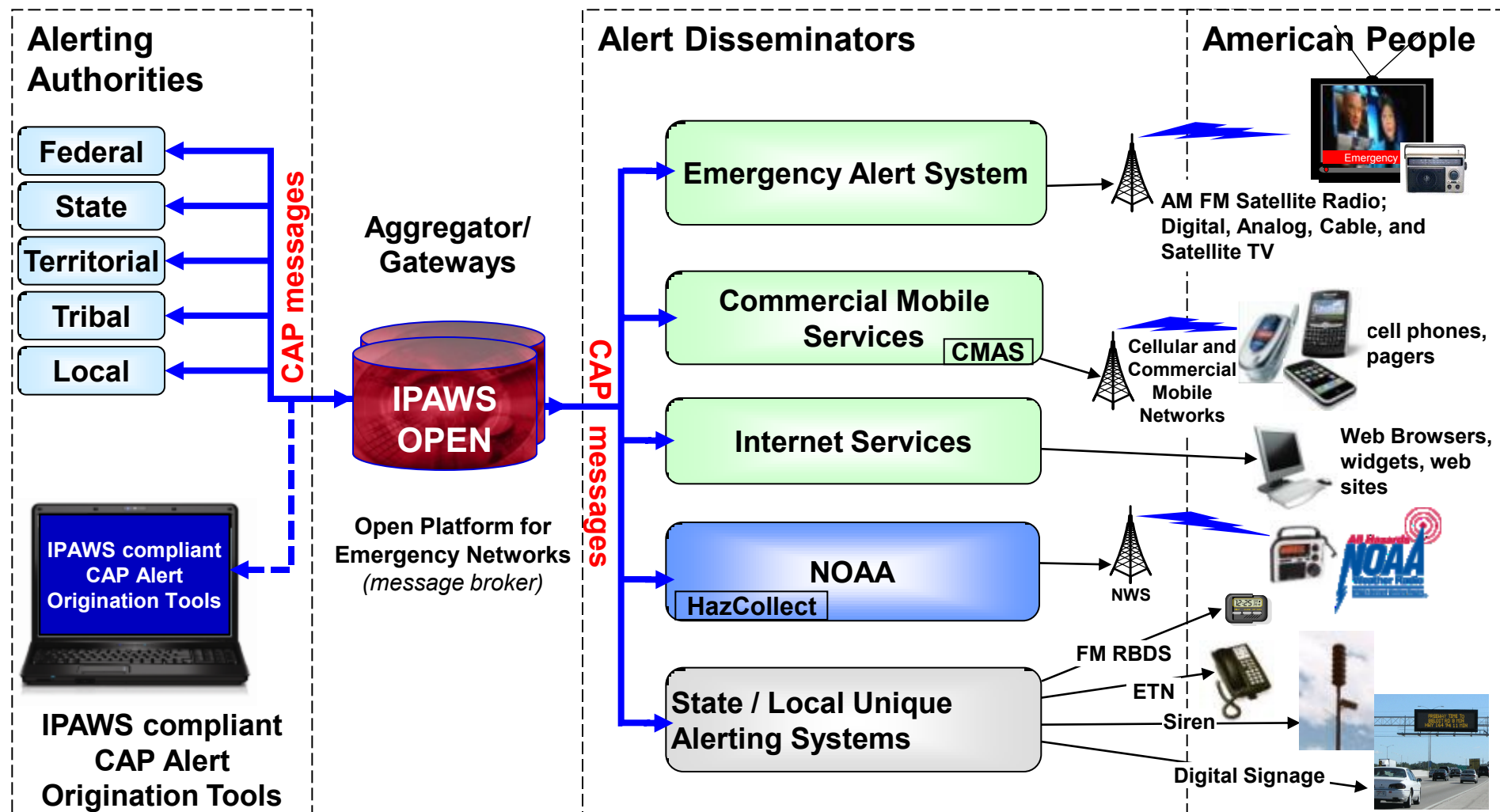
Home Phone



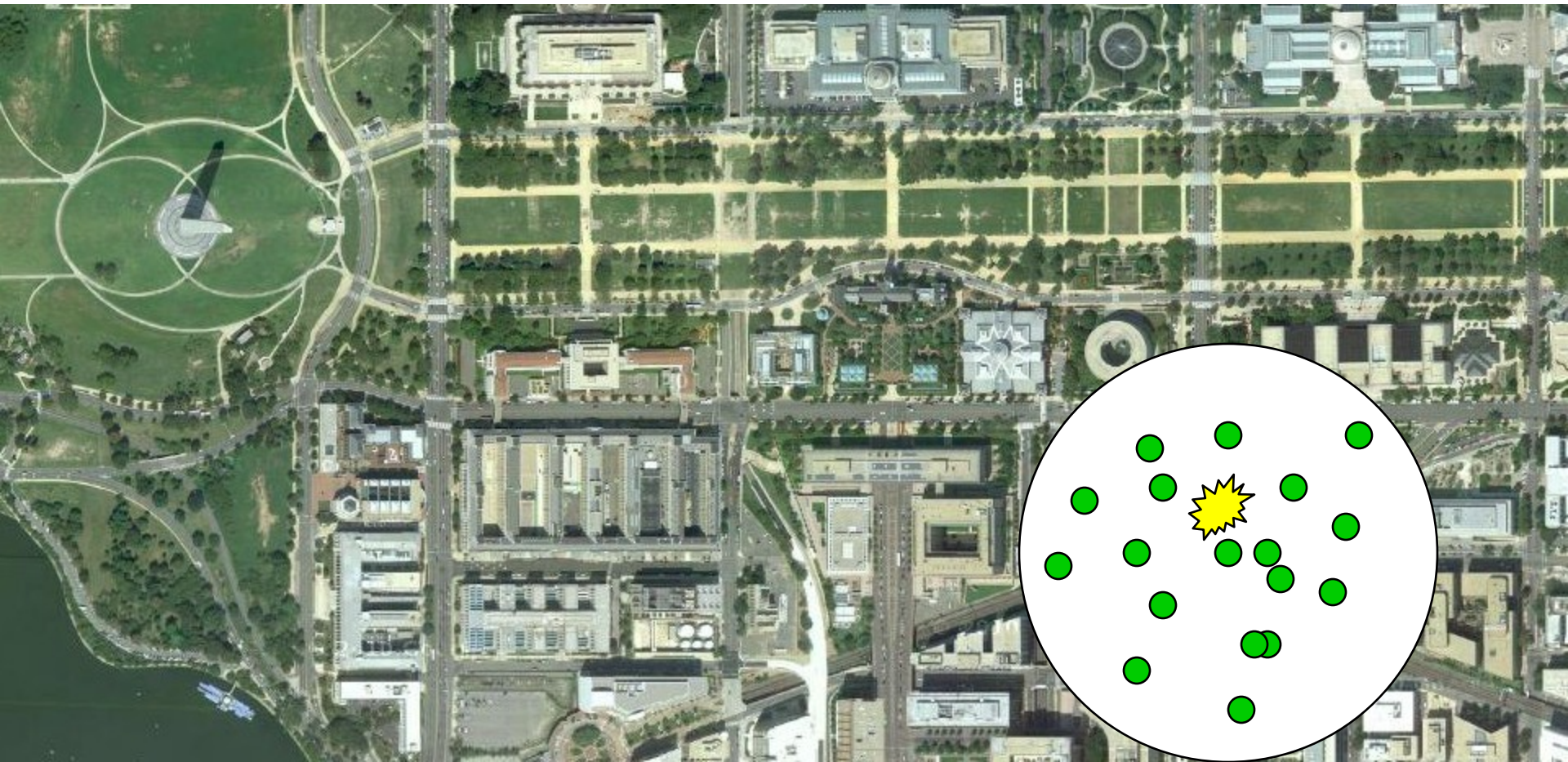
Public Signage

IPAWS Architecture

Standards Based Alert Message protocols, authenticated alert message senders, shared, trusted access & distribution networks, alerts delivered to more public interface devices

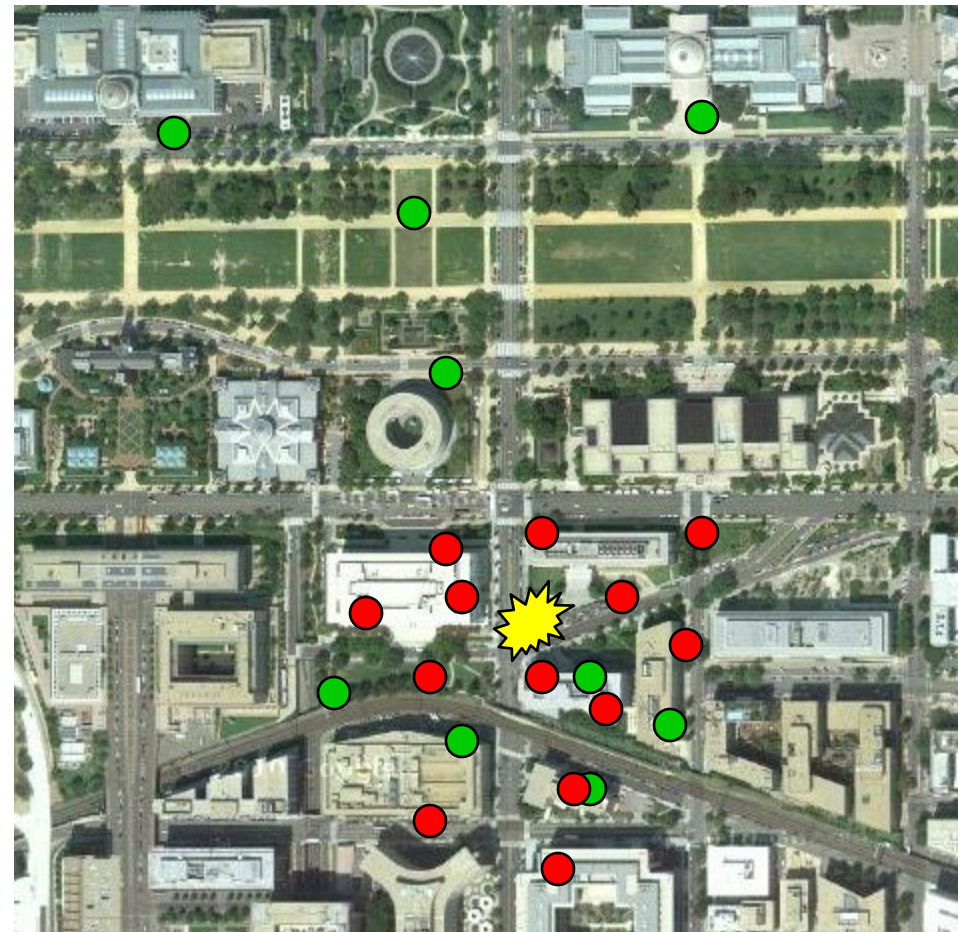


Commercial Mobile Alert System

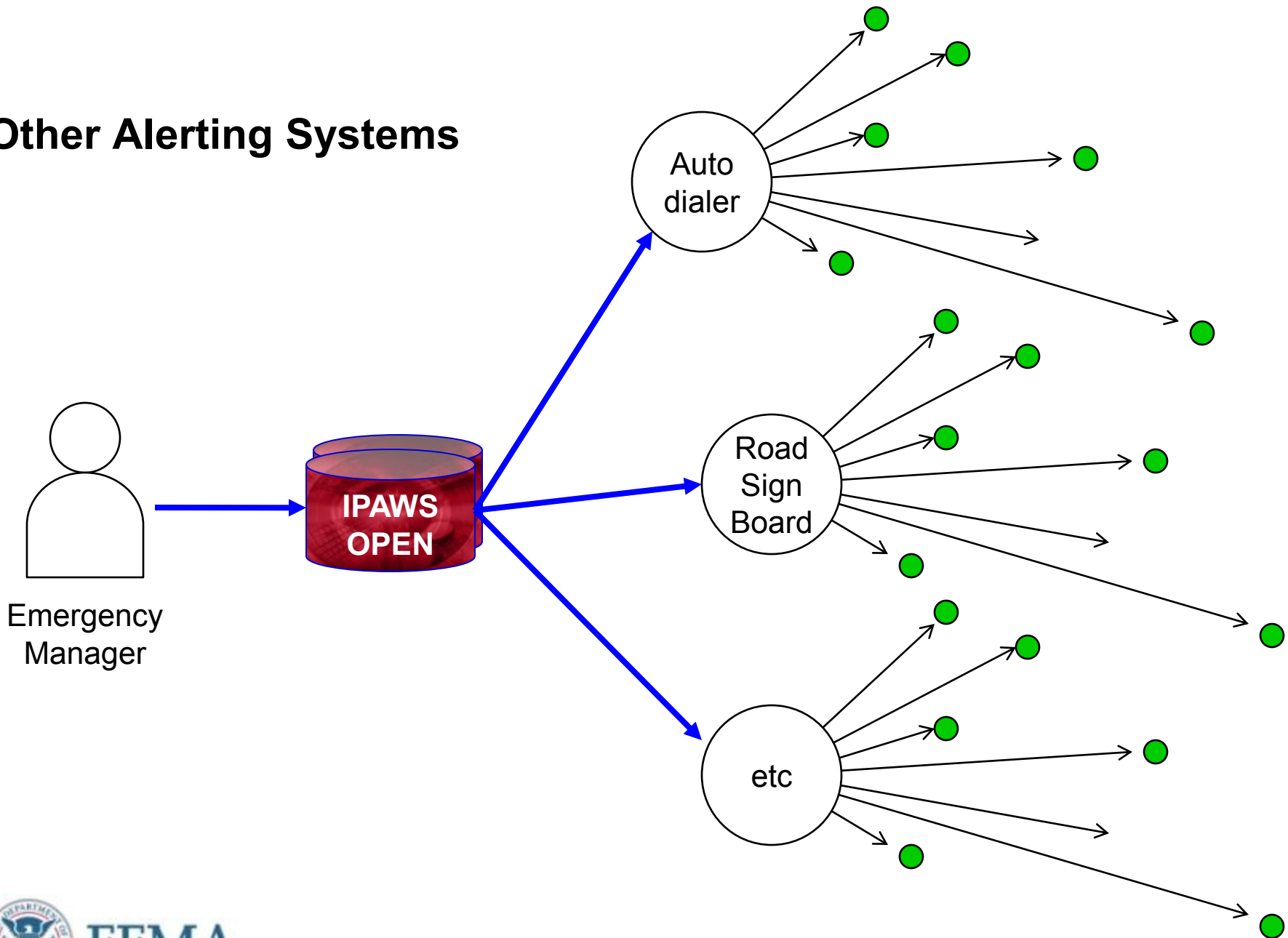


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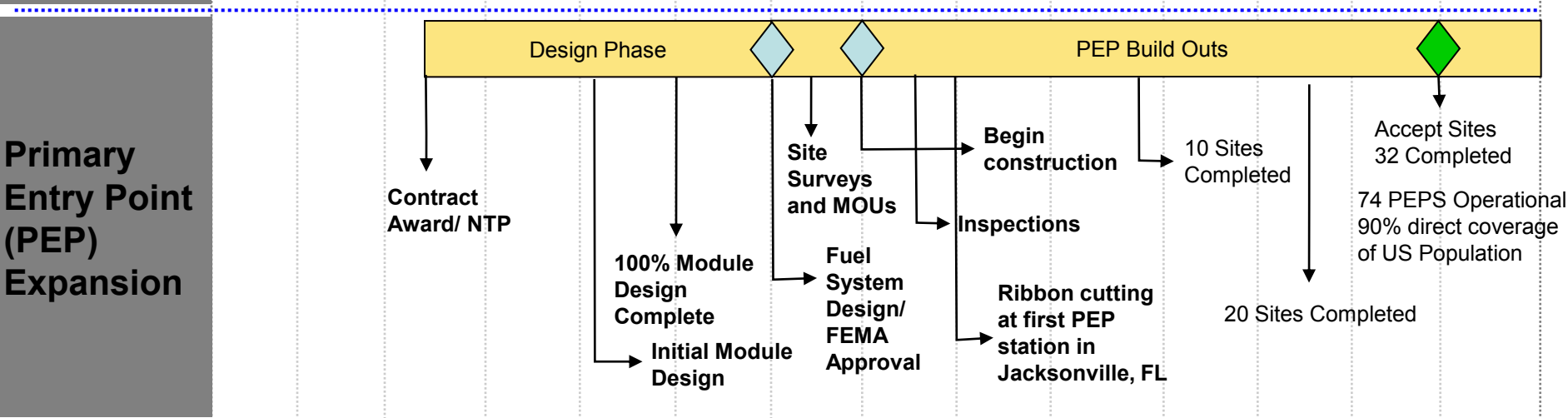
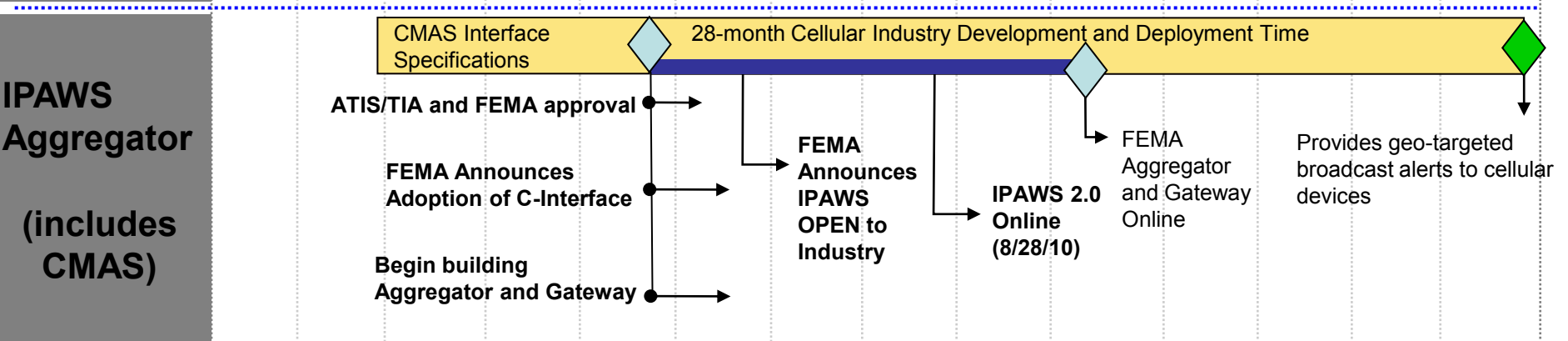
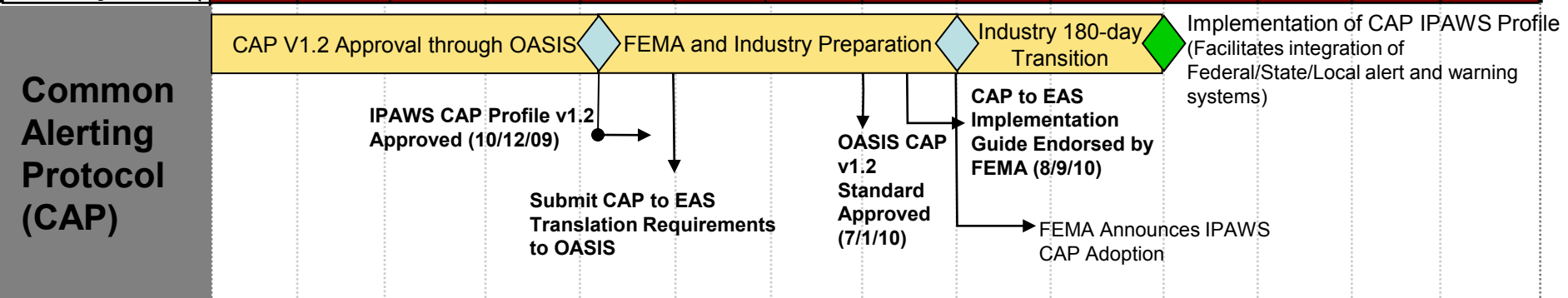
Subscription Based SMS Text Alerting



Other Alerting Systems



| Fiscal Year | FY09 | | | | FY10 | | | | FY11 | | | | FY12 | |
|-------------|------|----|----|----|------|----|----|----|------|----|----|----|------|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |



IPAWS Project Areas

- ▶ Emergency Alert System – modernization and expansion of EAS - implementation of next generation digital format for distribution of alerts; the Common Alerting Protocol (CAP); doubling of FEMA connected Primary Entry Point (PEP) stations to provide direct EAS broadcast coverage to 90% + of the United States population
- ▶ Commercial Mobile Alert System (CMAS) – system enabling alert authorities access to cellular networks for broadcast of alert messages in text format (capability is alert message broadcast to a location, not a subscription SMS based service)
- ▶ IPAWS Alert Aggregator (OPEN) – a CAP message broker and dissemination gateway providing authenticated alert authorities at all levels (federal state territorial, tribal, local) access to public communications networks for dissemination of alert and warning information
- ▶ Integration of capabilities and access with NOAA capabilities
- ▶ Training Development and Outreach
- ▶ Study and Development of better alerting capabilities – especially for Americans with functional and special access needs and non-English speakers

IPAWS is enhancing and modernizing the National EAS system while developing additional capabilities that will be available for use by all levels of alert authority (digital alert distribution to broadcasters, cellular broadcast alerts, integration with NOAA networks)

IPAWS does not replace local alerting systems. Through integration, IPAWS can provide additional capabilities to local alerting authorities.



IPAWS Milestones & Activities

- ▶ **IPAWS Technical Specification to Common Alerting Protocol v1.2 (Completed – Nov 2009)**
- ▶ **Commercial Mobile Alerting System Interface Specification (Completed – Dec 2009)**
- ▶ **Conducted live code exercise of national EAS (EAN) in Alaska (Completed – Jan 2010)**
- ▶ **First Expansion Primary Entry Point station brought online (31 August 2010)**
- ▶ **DM-OPEN v 2.0 brought online in FEMA data center (29 August 2010)**
 - ▶ **DMIS / OPEN v1.0 remains online in DHS data center for transition period**
- ▶ **Accepted the ECIG CAP to EAS Implementation Guide (August 2010)**
 - ▶ Document available at: <http://www.eas-cap.org/documents.htm>
- ▶ **Formally adopted Common Alerting Protocol (CAP v1.2) (September 2010)**

Moving Forward:

- ▶ **Conformance testing of vendor products to IPAWS CAP Profile**
 - ▶ Lab web site/vendor application at: <https://www.nimssc.org/ipawsconform/default.asp>
- ▶ **IPAWS CMAS Gateway available for carrier testing (Feb 2011)**
- ▶ **Inventory of State and Local EOC Alert and Warning Capabilities**
- ▶ **Nationwide exercise of the national Emergency Alert System (2011)**



Comments and Questions

► **IPAWS Website** - <http://www.fema.gov/emergency/ipaws>

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Questions?



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Framework Update



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Framework Current Projected Timeline

- Framework Development (Complete)
- Initial System Integration Testing (Complete)
- Framework UAT System Operational (20 December 2010)
- Final Internal Testing Complete (31 December 2010)
- User Acceptance Testing (UAT) Complete (14 January 2011)
- Framework COG Registration Begins (24 January 2011)
- Framework Initial Operating Capability (IOC) Go Live Date (31 January 2011)
- Framework 1st Semi-Annual Maintenance Release July 2011

This projected schedule assumes successful completion of UAT, FEMA granting IPAWS an Authority to Operate (ATO) for Framework, meeting other internal FEMA dependencies and successfully passing all remaining project life cycle control gates.



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January SIG Presentation

5 January 2011

- Framework COG Registration Process
- Common Operational Picture (COP)
 - Consolidated Map of all Incidents, Alerts, Resource Requests
- Common Alerting Protocol (CAP) Authoring
- Incident Creation
- Resource Request Messaging
- Additional Functionality Overview



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Questions?



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IPAWS-OPEN 2.0 Update



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IPAWS-OPEN 2.0 Test Environment

- ▶ IPAWS-OPEN 2.0 is operational
- ▶ Test Environment is ready for testing
- ▶ FEMA IT has approved IPAWS for an Interim Authority to Test.
Conditions:
 - MOA signed by each Testing entity
 - ROB signed by each developer and/or user
 - Weekly report of active test activity
 - Individual Test Plans will track test results

IPAWS-OPEN 2.0 Approval Process

- ▶ You will identify yourself by filling out the Questionnaire
- ▶ We will send you an MOA and ROB
- ▶ You will Sign the MOA (and make any needed updates)
- ▶ We will provide:
 - Copy of fully executed MOA
 - IPAWS-OPEN design Document
 - Digital certificate
 - Accessible web service end point
 - Test plan with checkboxes for identifying the services you plan to use
 - CAP (disseminate only)
 - CAP (create and disseminate)
 - NWEM
 - EDXL-DE

IPAWS-OPEN 2.0 Testing and Demonstration

- ▶ We will work together to get initial success on each checked service interface
 - IPAWS will record progress for weekly reports
 - No exhaustive tests are required on our side – just to ensure basic access and capability
 - IPAWS will also record the number of posts accomplished by each system for its weekly reports
- ▶ After Testing
 - Support for added testing (modification to your test plan)
 - Developer help for more intricate query issues and the like that are beyond the scope of the basic test plan
 - Support for Demonstrations as applicable
 - Continued usage reports for all activity in test environment

Operational Use of IPAWS-OPEN 2.0

- ▶ Customer will request and execute MOA for operational use of your product to connect to the FEMA operational operational environment
- ▶ Essentially the same process as for test, but on a “per COG” basis, instead of a “per system” basis
- ▶ No cost to you or your customer for operational and test use, but no direct subsidy (other than help desk support) to cover your development costs either

IPAWS-OPEN 2.0 MOA Status

- ▶ 49 MOAs in development
 - 22 Executed MOAs
 - 12 Others in Active process
 - 15 Identified with Questionnaires
- ▶ Representing all aspect of IPAWS-OPEN
 - Disseminators (Cable TV – EAS – RBDS)
 - Originators (PSAP, EM, Notification and Alerting, Military)
 - DE systems

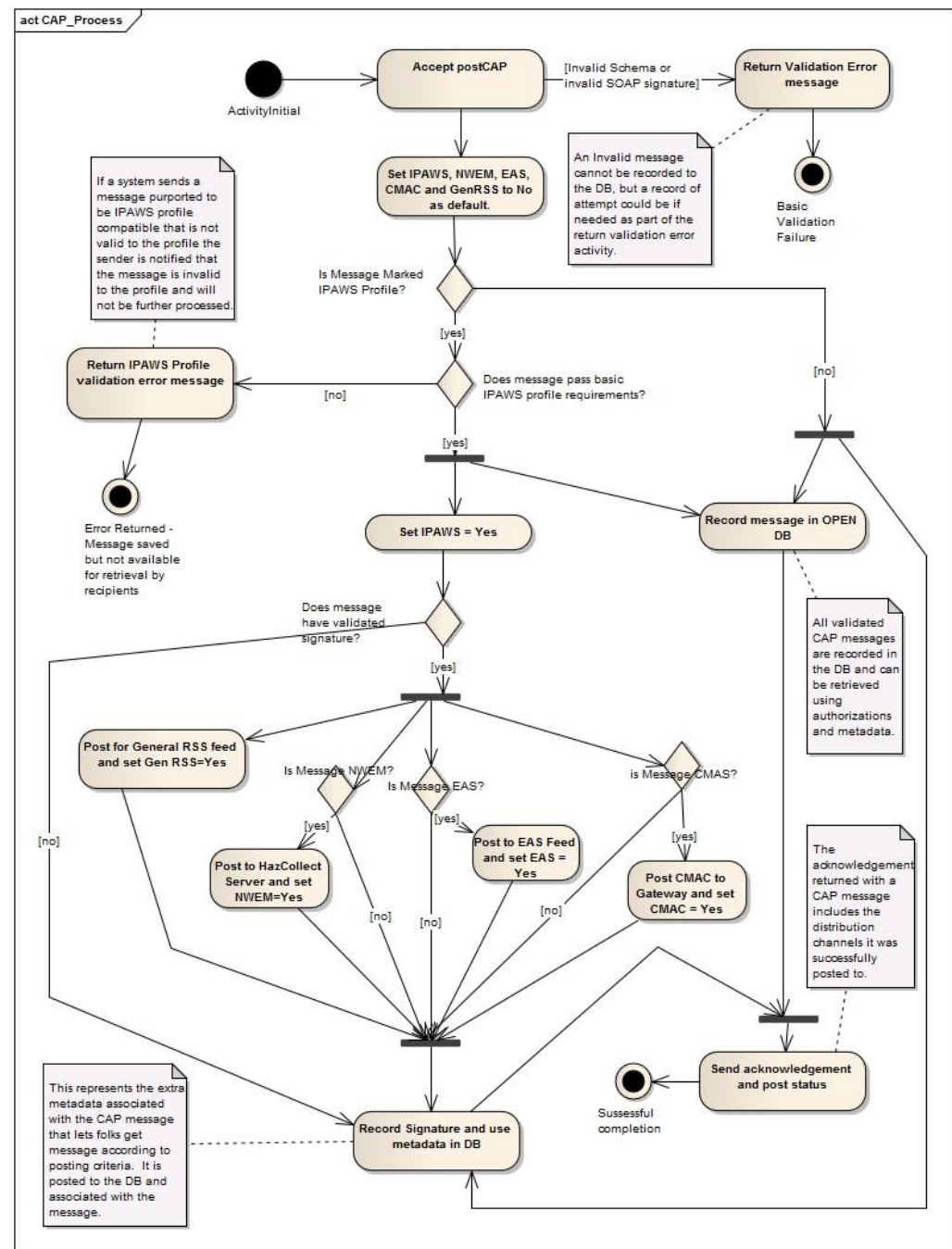
IPAWS-OPEN 2.0 “Horizon” Items

- ▶ Signatures
 - Need two more in test environment
 - Need .Net or how to convert .jks correctly for .Net
- ▶ Reference Implementation
 - Basic connection in .Net and Java
- ▶ CAP examples and explanation
 - Private
 - Public Non-IPAWS
 - EAS push
 - CMAS
 - NWEM
- ▶ RSS feeds
 - Private for EAS
 - Public



Alert Processing – IPAWS-OPEN 3.0

1. Is it valid CAP and is the poster authorized? If not, reject.
2. Is it marked IPAWS? If not, save for retrieval with no push.
3. If marked IPAWS, is it valid IPAWS? If not, reject.
4. Is message signed with a known signature? If not, save for retrieval with no push.
5. Determine which IPAWS services to use based on data (Combination of General RSS and 0 or more of NWEM, EAS, and CMAS).
6. Save for retrieval as well and return alert usage to posted system with acknowledgement.



Questions?



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